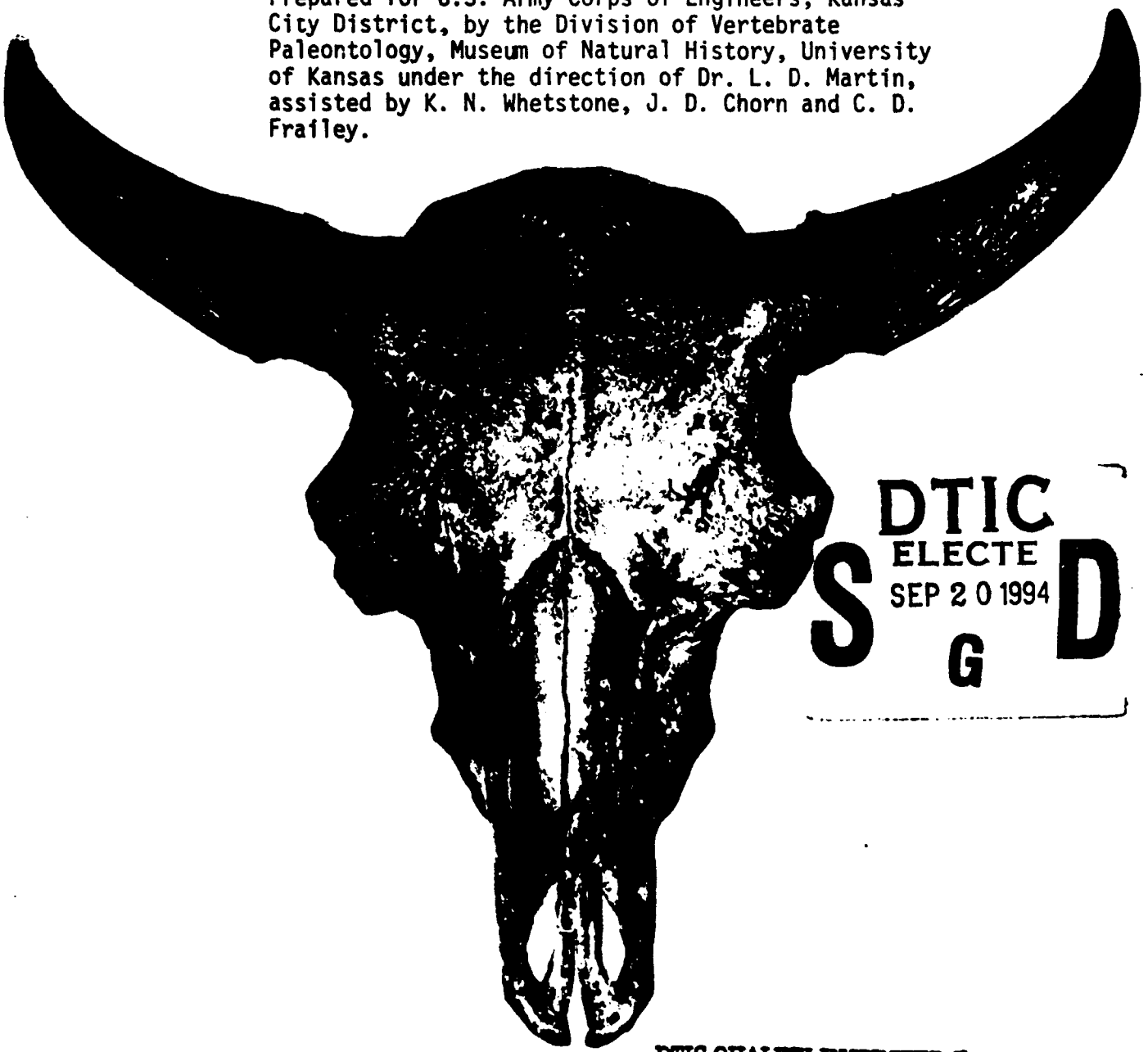
SURVEY OF FOSSIL VERTEBRATES FROM EAST-CENTRAL KANSAS

KANSAS RIVER BANK STABILIZATION STUDY

Prepared for U.S. Army Corps of Engineers, Kansas City District, by the Division of Vertebrate Paleontology, Museum of Natural History, University of Kansas under the direction of Dr. L. D. Martin, assisted by K. N. Whetstone, J. D. Chorn and C. D. Frailey.



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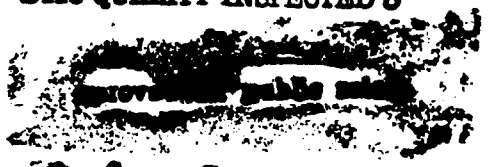
1979



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Survey of Fossil Vertebrates from East-Central Kansas

Kansas River Bank Stabilization Study

Prepared for

U. S. Army Corps of Engineers,

Kansas City District

Purchase Order DACW41-78-M-1055

by

The Division of Vertebrate Paleontology, Museum of Natural History, under the direction of Dr. Larry D. Martin, assited by K. N. Whetstone, J. D. Chorn and C. D. Frailey

University of Kansas, Lawrence, KS 66045

1979

Cover illustration: Skull of *Bison bison* (KUVP 54005) from Kansas River at Bonner Springs, Wyandotte County, Kansas. Photograph by David Frailey, University of Kansas.

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SURVEY OF FOSSIL VERTEBRATES FROM EAST-CENTRAL KANSAS

LARRY D. MARTIN

INTRODUCTION

This survey of vertebrate fossil resources was prepared for the Kansas City District, U. S. Army Corps of Engineers under purchase order DACW 41-78-M 1055 as authorized by Public Law 91-190. This work represents a preliminary identification,location and assessment of all known Pleistocene fossil localities in the Kansas counties of Mitchell, Lincoln, Ellsworth, Cloud, Ottawa, Saline, McPherson, Dickinson, Geary, Riley, Pottawatomie, Waubaunsee, Shawnee, Jefferson, Douglas, Leavenworth, Wyandotte and Johnson. Also included are several localities older than Pleistocene, but on the Kansas River floodplain. This area has not been covered by any previous paleontological survey.

The U. S. Army Corps of Engineers is currently involved in a study of channel migration and bank erosion on the Kansas River and its major tributaries. The Kansas River flows across Kansas in a generally eastward direction until it merges with the Missouri River at Kansas City. In the study area the river cuts through geologic formations ranging in age from Pennsylvanian to Recent. In the banks are numerous localities from which fossil vertebrates have been collected. Sand bars in the river are a major source for fossil vertebrates of Pleistocene and sub-Recent age. However, the primary source of many of these fossils must be the banks themselves. Therefore, bank stabilization could obscure important collecting localities. The major repositories for fossil specimens are the University of Kansas Museum of Natural History (KUVP) and the University of Michigan Museum of Paleontology (UMMP). Specimens are also housed in the U. S. National Museum (USNM), Washington, D.C.; Bethany College Museum (BCM), McPherson, Kansas; Kansas State University (KSU), Manhattan, Kansas; and the Yale Peabody Museum (YPM).

History of Collecting and Statement of Cultural Significance

The paleontological resources of the Kansas River drainage have long been recognized as critical to our understanding of the natural history of the central Great Plains They include fossils ranging in age from Pennsylvanian to Late Pleistocene and form an integral part of the cultural heritage of this region. Unfortunately, fossils in river drainages are rarely recovered. They are rapidly destroyed by erosion because of their proximity to the river. In most cases their life span after they begin to be uncovered by natural forces

must be measured in weeks rather than years. The few records that we do have are mostly chance discoveries of fisherman or rockhounds and can only represent a small fraction of what a well-organized professional survey could hope to find. Many of the fossils that have been recovered from the Kansas River drainage have been placed in the University of Kansas Museum of Natural History. In fact, one of the earliest specimens to be added to that collection was a mandible of an American mastodon, Mammut americanum. It was found by then Chancellor of the University of Kansas, F.H. Snow, who discovered it while fishing in Wakarusa Creek. Professor Snow's fossil and the excitement of discovery are described in this contemporary newspaper account (the exact citation is unknown):

> Dr. Snow, determined to reach deeper water, stepped onto what looked like an old tree stump. After fishing from this vantage point for some time, he suddenly slipped off the stump. Upon trying to regain a footing on the slippery mass, he found this supposed stump did not feel exactly like wood. Naturally of an investigating nature, he examined it more fully and found it to be of a stony nature.
>
> Flinging his fish pole to land, and disregarding the prospects of a muddy investigation, he rolled up his sleeves and tried to move the object nearer the bank, this feat proved too much for his strength, so calling his companions to help, they finally landed the catch and found to the Doctor's joy, that he had discovered a magnificent pair of under jaws of an early Mastodon that used to roam around Lawrence in the Pleistocene period.

Some quarry sites have been found in the western part of the drainage (west of Manhattan). Most of these were discovered and worked by the late Dr. Claude W. Hibbard, first for the University of Kansas and later for the University of Michigan. These quarry sites are mostly in terrace deposits of middle Pleistocene age and are thus too old to have any reasonable probability of producing associations with human remains. However, associations of fossil human bones or artifacts may be expected in the eastern part of the drainage (east of Manhattan) where Late Pleistocene fossils are most abundant.

It is not known why the area east of Manhattan has become the most productive of fossil vertebrates. Fossils may be more abundant in this area or they may have been searched for more intensively or both.

In the area around Kansas City, collectors have amassed a vast amount of Pleistocene and Recent bones mostly from sand bars in the

Kansas River. (Pleistocene plant fossils have not been recovered from the Kansas River floodplain). Only a small percentage of this material reaches permanent repositories. However, enough has been salvaged to indicate a rich Pleistocene assemblage including forms indicative of spruce forest such as the American mastodon, Mammut americanum, the woodland musk ox, Symbos cavifrons, the woodland peccary, Mylohyus, and the stag-moose, Cervalces. Associated with these fossils is a small number of human bones, some of which show similar degrees of petrification. If it can be shown by absolute dating techniques (radiocarbon, amino acid racemization, and others) that these bones are contemporaneous with the extinct fauna, then we are in a position to make important statements about the lives and habits of the first people to live in the Kansas River drainage system. Even if these associations prove to be false, the Late Pleistocene fauna of the Kansas River drainage lies in the ecotone between two great Pleistocene biomes, that of the spruce forest that dominated the eastern part of North America and that of the western montane conifer parklands that dominated the west and southwest. Most Paleo-Indian sites are from the latter biome so paleoenvironmental information about the interface between the two should help us to better understand the nature of the immigration of man into the New World and the environments with which these early immigrants had to cope.

The methods used in the compilation of this report include a literature survey and a search of the catalogue and collection of the Division of Vertebrate Paleontology, Museum of Natural History, other paleontological collections and information from private collectors were also utilized.

K. N. Whetstone, J. D. Chorn, and C. D. Frailey assisted in the compliation of this data.

Part 1

PLEISTOCENE VERTEBRATES FROM EAST-CENTRAL KANSAS

(Listed alphabetically by county)

Specimens which are particularly rare or well-preserved are marked with an asterisk (*).

University of Kansas collecting localities are designated below by the letters KU-followed by a two or three letter code for the county and a number (e.g., entry number one, Cloud County, is locality KU-CL-2.

CLOUD COUNTY

1. KU-CL-2

Material:	Equus ?complicatus	ramus	KUVP 394

2. KU-CL-3

Material:	Equus sp.	3 teeth	KUVP 7326
	Bison sp.	2 teeth	KUVP 7327
	Bison sp.	fragments	KUVP 7328
	Antilocaprinae	base of skull	KUVP 7329
	Cervidae	antler	KUVP 7331
	Mammalia	vertebra	KUVP 7330

DICKINSON COUNTY

3. KU-DIC-1

Material:	Equus niobrarensis	mandible	KUVP 2818

DOUGLAS COUNTY

4. KU-DOU-23

Material:	Bison bison	skull*	KUVP 15003

5. KU-DOU-50

Material:	Mammut americanus	ramus	KUVP 5983
	Bison americanus	literature citation	

References: Savage, 1877-78; Hay, 1924

6. KJ-DOU-51

Material:	Cervus sp.	antlers	KUVP 50174
			KUVP 50175
	Bison bison	skulls	lit. cit.

Reference: Hay, 1924

7. KU-DOU-52

Material:	Equus laurentius	skull*	KUVP 347

Reference: Hay, 1924

8. KU-DOU-53

Material:	Bison occidentalis	skulls	KUVP unnumbered

Reference: Hay, 1924; Lane

9. KU-DOU-54

Material:	Bison sp.	horn cores	KUVP 10297

10. KU-DOU-55

Material:	Bison sp.	horn core	KUVP 397

11. KU-DOU-56

Material:	Bison sp.	scapula	KUVP 12518

12. Kansas River, "North Lawrence"

Material:	Odocoileus virginianus	antlers	KUVP unnumbered
	Bison kansensis	skull	KUVP 388

13. "Kansas River, Douglas County"

Material:	Smilodon fatalis	femur*	KUVP 479
	Cervalces canadensis	skull*	KUVP 3892
	Bison sp.	humerus	KUVP 389

14. "Kansas River near Lawrence"

Material:	Bison sp.	skulls	KUVP 2827
			KUVP 7608
		vertebra	KUVP 2823
		ramus	KUVP 5912
	Proboscidea	vertebra	KUVP 3891

ELLSWORTH COUNTY

15. KU-ELS-4

Material:	Mammuthus primigenius	mo'ar	KUVP 3777

16. KU-ELS-5

Material:	Equus	calcaneum	KUVP 4923

17. Kanopolis Local Fauna

Material:	Acris crepitans	ilia	UMMP 60437
	Hyla versicolor	ilia	UMMP 60476
	Rana catesbeiana	vertebrae	UMMP 60357
	Rana pipiens	fragments	UMMP 60381
	Chelydra serpentina	vertebrae	UMMP 60380
	Sternothaerus odoratus	fragments	UMMP 60484
	Graptemys geographica	Hyoplastron	UMMP 60356
	Pseudemys scripta	fragments	UMMP 60355
	Trionyx spinifer	xiphiplastron	UMMP 60485
	Ophisaurus attenuatus	vertebra	UMMP 60479
	Eumeces cf. fasciatus	sacrum	UMMP 60432
	Regina grahami	vertebrae	UMMP 60433
	Natrix sipedon	vertebrae	UMMP 60435
	Thamnophis sp.	vertebrae	UMMP 60477
	Natricinae indet.	vertebrae	UMMP 60486
	Heterodon	vertebrae	UMMP 60487
	Coluber sp.	vertebrae	UMMP 60488
	Pituophis melanoleucus	vertebrae	UMMP 60435
	Colubrinae indet.	vertebrae	UMMP 60489
	Sistrurus catenatus	vertebrae	UMMP 60491

The following taxa are known from fragments in the UMMP collections:

Lepisosteus osseus	Blarina sp.
Pimephales promelas	Cryptotis parva
Notropis sp.	Scalopus aquaticus
Nocomis sp.	Paramylodon harlani
Campostoma sp.	Holmesina septentrionalis
Cyprinidea	Cynomys sp.
Ictiobus niger	Geomys bursarius
Ictalurus melas	Thomomys sp.
Ictalurus punctatus	Perognathus hispidus
Noturus sp.	Castoroides sp.
Ictaluridae	Reithrodontomys humulis
Micropterus salmoides	Peromyscus sp.
Lepomis cyanellus	Neotoma sp.
Lepomis megalotis	Neofiber leonardi

Lepomis sp.	Ondatra nebracensis
Microtus llanensis	Proboscidea
Microtus pennsylvanicus	Mammuthus sp.
Zapus sandersi	Sylvilagus floridanus
Vulpes sp.	Equus niobrarensis
Procyon lotor	Equus sp.
Mephitis sp.	Tapirus veroensis
Lutra canadensis	Mylohyus nasutus
Smilodon sp.	Camelops sp.
Hemiauchenia sp.	Odocoileus sp.

Reference: Holman, 1972; Neff, 1975; Hibbard, et al. 1978.

GEARY COUNTY

18. KU-GEA-1

Material: Equidae	tooth	KUVP 3195

JEFFERSON COUNTY

19. No known localities

JOHNSON COUNTY

20. KU-JOH-1

Material: Bison sp.	teeth	KUVP 4968

21. KU-JOH-2

Material: Megalonyx jeffersoni	skull*	private coll.

22. "Kansas River near DeSoto"

Material: Mammut sp.	vertebra	KUVP 10148

LEAVENWORTH COUNTY

23. KU-LEA-1

Material: Bison bison	skull*	USNM 1718

Reference: Hay, 1924

24. KU-LEA-2

Material: Mylohyus sp.	molar*	KUVP 50172

Mylohyus sp.	mandible*	KUVP 50171
Cervidae	molar	KUVP 50173

LINCOLN COUNTY

25. KU-LIC-2

Material:	Equus sp.	molar	KUVP 3110

26. KU-LIC-4

Material:	Microtus paroperarius	mandible	KUVP 6298
		mandible	KUVP 6299
	Geomys	fragment	KUVP 6300
	Rodentia	teeth	KUVP 6301
			KUVP 6302
	Mammalia	fragments	KUVP 6303

Reference: Frye, Leonard, and Hibbard, 1943.

27. KU-LIC-5

Material:	Sorex cinereus	ramus	KUVP 6674
	Blarina fossilis	ramus	KUVP 6675
	Citellus sp.	upper molar	KUVP 6730
	Geomys sp.	teeth	KUVP 6732
	Castoroides sp.	incisor	KUVP 6296
	Reithrodontomys	ramus	KUVP 6679
	Neotoma sp.	molars	KUVP 6731a,b
	Microtus cf. pennsylvanicus	ramus	KUVP 6289
	Microtus cf. ochrogaster	ramus	KUVP 6288
	Neofiber leonardi	molar*	KUVP 6653
		molar*	KUVP 6654
	Ondatra zibethicus	molar	KUVP 6290a,b
		molars	KUVP 6677
	?Sylvilagus	3 teeth	KUVP 6678
	Equus niobrarensis	molar	KUVP 6287
	Odocoileus	antler	KUVP 6505
	various catfishes, sunfishes, frogs, toads, turtles, birds		lit. cit.

Reference: Hibbard, 1943

28. KU-LIC-6

Material:	Proboscidea	molar	KUVP 6177

MCPHERSON COUNTY

29. KU-MCP-2

Material: Mammut americanus	molar	KUVP 4929

30. KU-MCP-7

Material: Equus scotti	maxilla*	KUVP 6878

31. KU-MCP-8

Material: Mammut	molar	KUVP 7557

32. KU-MCP-9

Material: Sorex cf. cinereus	mandible	KUVP 7334
Blarina sp.	fragment	UMMP 51248
Cynomys cf. gunnisoni	mandible	UMMP 50497
	molar	UMMP 50495
Citellus tridecemlineatus	teeth	UMMP 50497
		KUVP 7347
Citellus richardsoni	fragments	UMMP 50498, 50499,
Geomys bursarius		UMMP 50501-506
		KUVP 7345, 7346
Perognathus hispidus	teeth	KUVP 7427, 7363, 7362
Onychomys sp.	fragment	KU 13458
Peromyscus sp.	fragment	KUVP 7385
Neotoma sp.	teeth	UMMP 24509
		KUVP 7359
Sigmodon hispidus	mandible	KUVP 7361
Ondatra annectens	molar	UMMP 24509
Ondatra nebracensis	fragments	UMMP 34712, 50931
		KUVP 7350
Synaptomys kansasensis	fragments	KUVP & UMMP
Microtus llanensis	fragments	KUVP & UMMP
Felis sp	molar	KUVP 7349
Lepus sp.	teeth	UMMP 50948
		KUVP 7348
Gigantocamelus sp.	calcaneum	KUVP 7340
Equus sp.	tooth	UMMP 50949
Euphagus cyanocephalus	coracoid	KUVP 7354
Numenius borealis	coracoid	KUVP 7428
Anas carolinensis	humeri	KUVP 9908, 9909

Lophodytes cucullatus	fragments	KUVP 9910, 9911
Bartramia longicauda	coracoid	KUVP 9912

References: Hibbard, 1952; Galbreath, 1955; Semken, 1966.

33. Sandahl Local Fauna

Material: The following are known from fragments in the collections of the University of Michigan Museum of Paleontology (UMMP).

Trionyx sp.		
Ambystoma tigrinum		
Scaphiopus bombifrons		
Bufo woodhousei		
Rana pipiens		
?Pseudemys		
Eumeces sp.		
Heterodon cf. H. playrhinos		
Natricinae indet.	Indeterminate natricine snakes	
Bufo cognatus		
Bufo sp.	toad	
Pseudacris triseriata		
Sceloporinae indet.	Indeterminate sceloporine lizard	
Cnemidophorus cf. C. sexlineatus		
Coluber or Masticophis		
Natrix sipedon		
Thamnophis sp.		
Tropidoclonion lineatum		
Crotalus cf. C. viridis		

The following known specimens in the collections of KU, MNH, UMMP, Bethany College Museum (BCM), and McPherson College Museum (MCM).

Lepisosteus sp.	scales	UMMP 50456
Icatalurus sp.	spines	UMMP 50457
Stizostedion vitreum (percidae)	paraphenoid	UMMP 50483
Perca flavescens	opercle	UMMP 50455
Mylohyus nasutus	palate*	UMMP 44703
	molar	UMMP
Sorex cf. cinereus	mandible	UMMP 50387
Megalonyx leidyi	skull*	BCM (type)
Megalonyx sp.	phalanges	UMMP 50930 BCM 4088
Paramylodon cf. harlani	vertebra	MCM 50

Cynomys ludovicianus	mandible	UMMP 45355
Cynomys cf. gunnisoni	molars	UMMP 50388
	mandible	UMMP 50463
Citellus tridecemlineatus	teeth	UMMP 50394, 50470
	mandible	UMMP 50396
Citellus richardsoni	mandibles	UMMP 50396, 50471
	teeth	UMMP 50399
Geomys bursarius	fragments	UMMP 50400 50402, 504
Perognathus sp.	mandible	UMMP 50473
Castor canadensis	molars	UMMP 50927, 50929
Castorides sp.	incisor	UMMP 51166
	astragalus	UMMP 50921
Onychomys sp.	molars	UMMP 50404, 50474
Reithrodontomys cf. montanus	mandible	UMMP 50405
Peromyscus cf. progressus	fragments	UMMP 50406, 50407, 50408
Neotoma sp.	molar	UMMP 50475
Ondatra nebracensis	molar	UMMP 50519
	mandible	UMMP 50520
Microtus ochrogaster	fragments	UMMP 44764, 50420, 52610, 50476
Microtus pennsylvanicus	mandibles	UMMP 45356, 5043, 50477
Zapus hudsonius	mandible	UMMP 45357
Dinobastis serus (Felidae)	calcaneum	UMMP 50918
Mammut americanus	molar	KUVP 4929
Mammuthus columbi	molar	MCM 65
Lepus sp.	tooth	UMMP 50947
Camelops sp.	teeth	UMMP 50431, 50492, 50464
Odocoileus sp.	mandible	UMMP 50920
Equus cf. niobrarensis	fragments	UMMP 50618, 50617, 50465, 50526
	mandible	MCM 42
Smilodon sp.	fragment	MCM 9

34. "10 miles west of Lindsborg"

Material: Mammuthus imperator	molar	BCM 896

Reference: Hibbard, 1952

35. "5 miles northwest of Canton"

Material: Proboscidea	unknown	lit. cit. only

Reference: Lane, 1945, 1948

36. "2 miles east of McPherson"

Material: Proboscidea	unknown	lit. cit. only

Reference: Lane, 1945, 1948

37. "McPherson County"

Material: Proboscidea	vertebra and limb bone	KUVP 5073

MITCHELL COUNTY

38. KU-MIT-2

Material: unidentified	unidentified	KUVP 2045

OTTAWA COUNTY

39. KU-OTT-1

Material: None accessioned

POTTAWATOMIE COUNTY

40. KU-POT-1

Material: Equus sp.	maxilla	KUVP 2822

41. "St. George" (KSU locality)

Material: Mammuthus (Parelephas) boreas	molar	KSU uncatalogued

RILEY COUNTY

42. "Sandbars on Kansas River south of Manhattan"

Material: unknown

Reference: Hay, 1924; Mason, 1883

43. "Manhattan, Ks; Kansas River"

Material: unknown

Reference: O'Brien, 1968.

44. "Blue River near Manhattan"

Material: Bison alleni	horn core	YPM 911 (type)

Reference: Marsh, 1877.

SALINE COUNTY

45. KU-SAL-1

Material: Equidae	premolar	KUVP 253

SHAWNEE COUNTY

46. KU-SHA-3

Material: Bison bison	skull	KUVP 6884
Mammut americanus	maxilla	KUVP 5067
	molar	KUVP 5898 (figure 1)
Cervalces scotti	skull*	KUVP 5069 (figure 2)

47. KU-SHA-4

Material: Bison antiquus	metapodial	KUVP 16110

WAUBAUNSEE COUNTY

48. No known localities

WYANDOTTE COUNTY

49. KU-WYA-3

Material: Bison sp.	vertebra	KUVP 34657
	vertebra	KUVP 34656
	horn cores	KUVP 34657
	humerus	KUVP 34655
		KUVP 31013
	femur	KUVP 34618
		KUVP 31014

	mandible	KUVP 34617
	metapodial	KUVP 31012
	sacrum	KUVP 31011

50. KU-WYA-4

Material: Bison crassicornis	skull*	KUVP 9905

Reference: Lillegraven, 1966.

51. "Bonner Springs area in the Kaw River bed"

Material: Megalonyx	femur*	Wyandotte Co. Museum unnumbered
Proboscidea	fragments	KUVP uncatalogued
Odocoileus	skulls	KUVP uncatlogued
Homo sapiens	partial skull*	KUVP 54001 (figure 3)
	femur*	KUVP 54002, 54003
Symbos cavifrons	partial skull*	KUVP 54004 (figure 4)

Reference: Nelson & Neas (in manuscript)

Bison bison	skull	KUVP 54005 (Cover illustration)

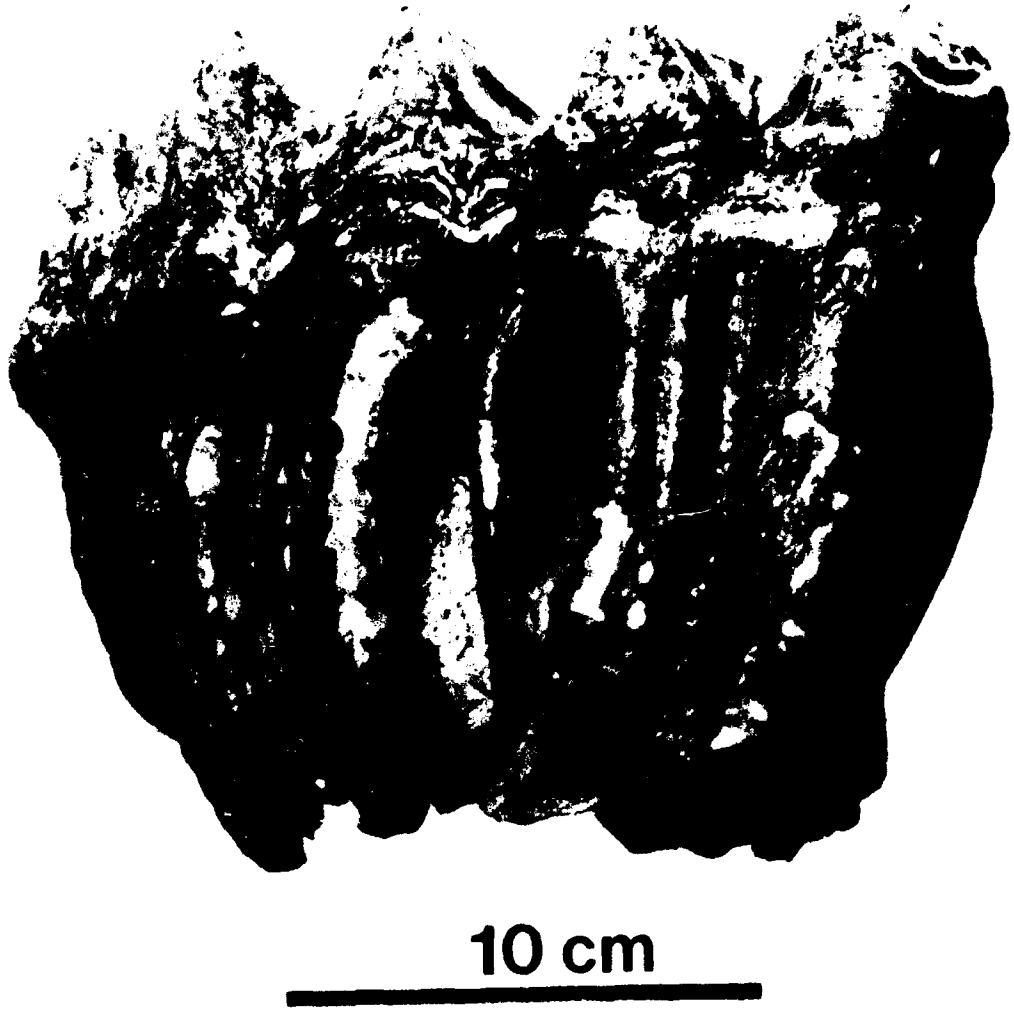


Figure 1. Upper molar of adult mastodon, Mammut americanus (KUVP 5898), from Kansas River at Topeka, Shawnee County, Kansas.

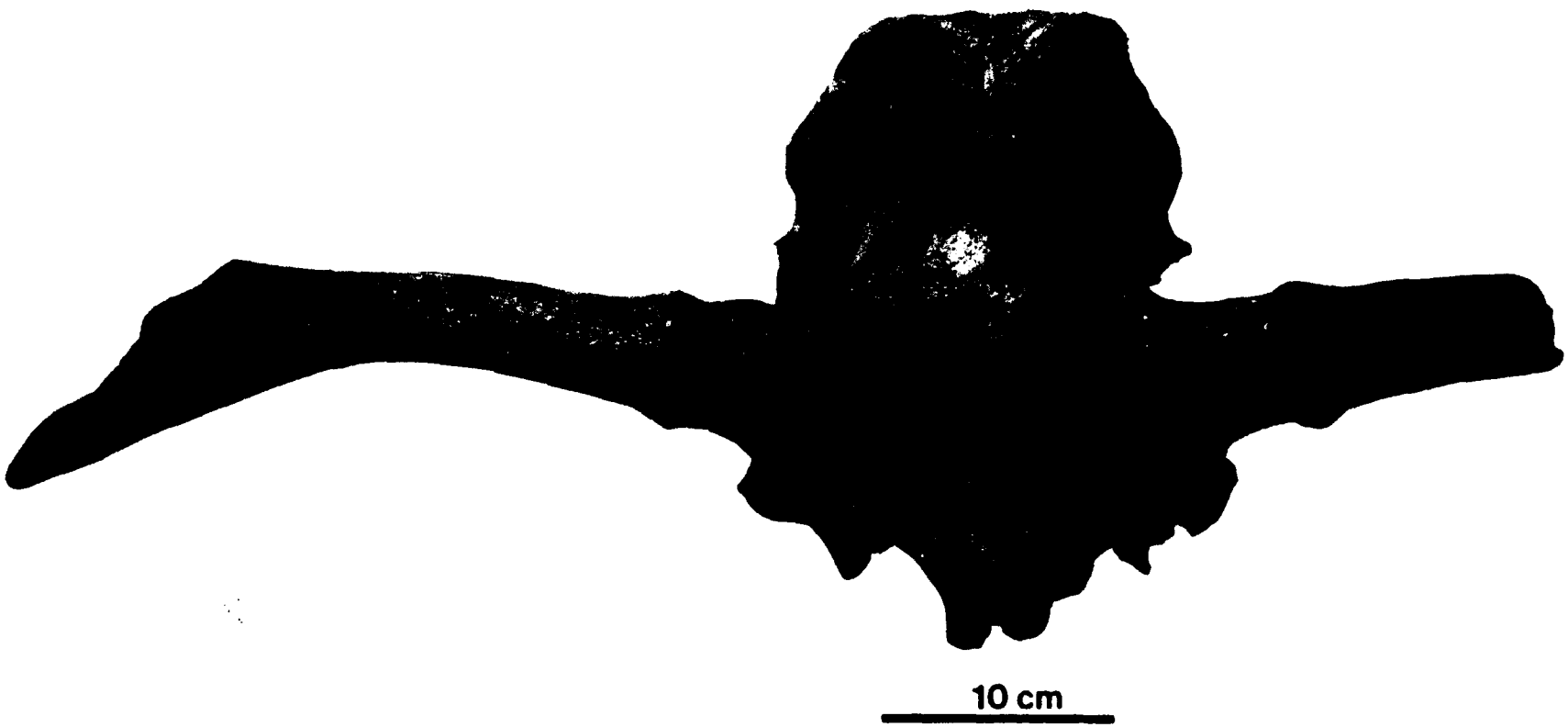


Figure 2. Partial skull of an immature male stag-moose, Cervalces scotti (KUVP 5069), from Kansas River at Topeka, Shawnee County, Kansas.

10 cm

Figure 3. Frontal bone of human, Homo sapiens (KUVP 54001), from Kansas River at Bonner Springs, Wyandotte County, Kansas.

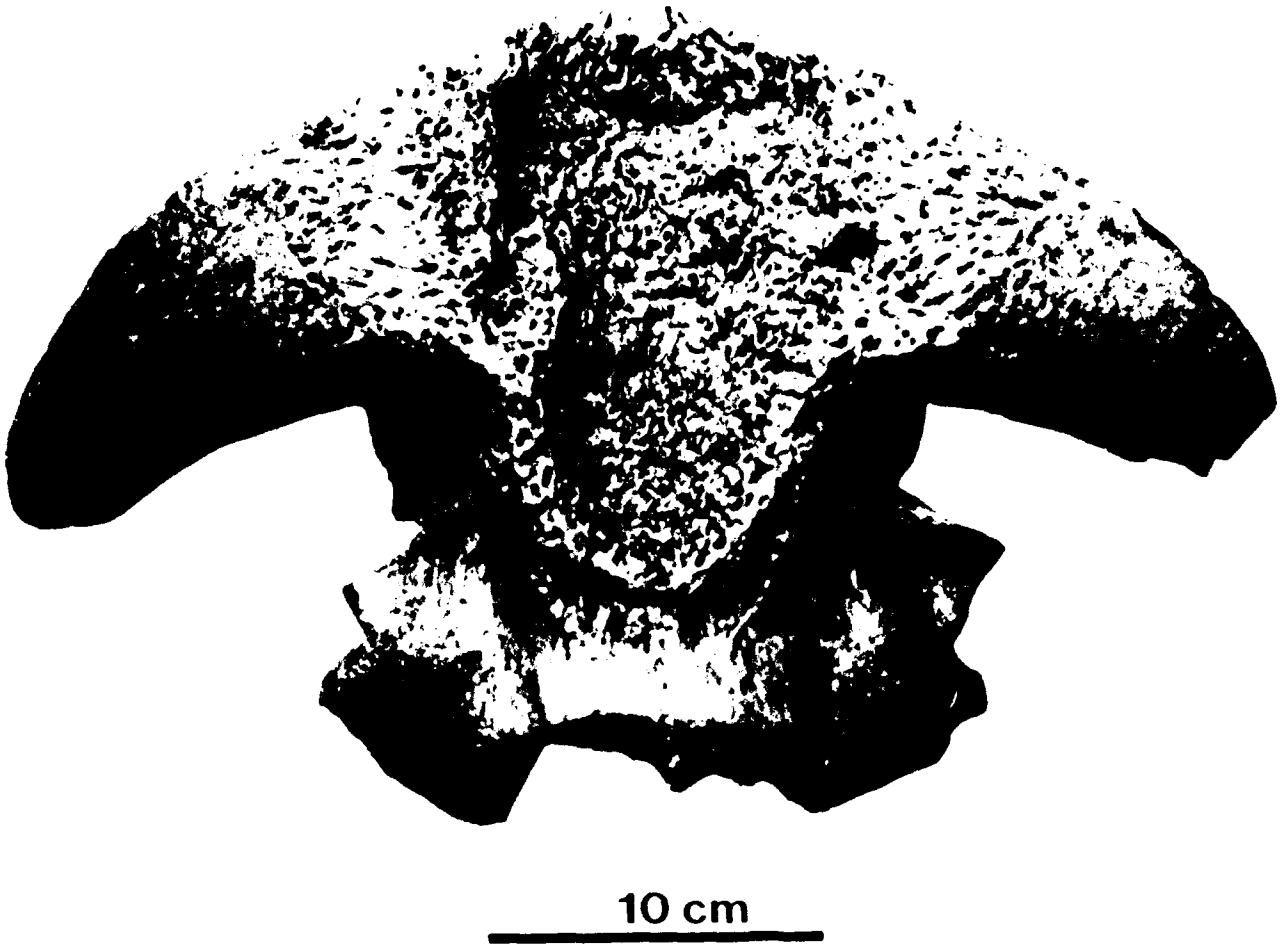
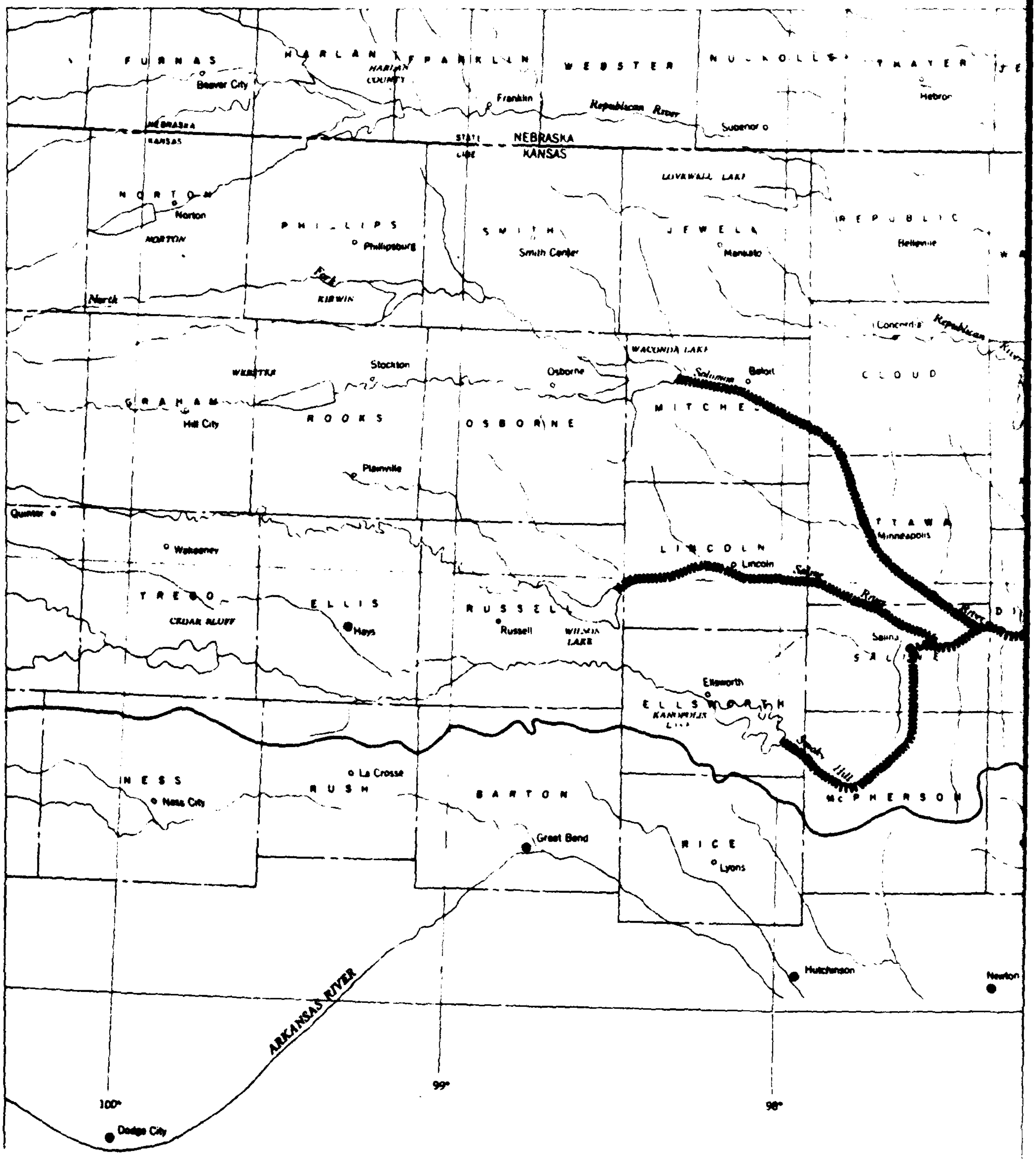


Figure 4. Partial skull of woodland musk ox, Symbos cavifrons (KUVP 54004), from Kansas River at Bonner Springs, Wyandotte County, Kansas. Reported by Nelson and Neas, in manuscript.



FURNAS
Beaver City
HARLAN
FRANKLIN
Franklin
WEBSTER
Republican River
THAYER
Hebron
NEBRASKA
KANSAS
LOVEWELL LAKE
NORTON
Norton
PHILLIPS
Phillipsburg
KIRWIN
SMITH
Smith Center
JEWELL
Mankato
REPUBLIC
Belleville
Concordia
CLOUD
WACONDA LAKE
Solomon
Beloit
Stockton
Osborne
GRAHAM
Hill City
ROOKS
OSBORNE
Plainville
Quinter
WaKeeney
TREGO
CEDAR BLUFF
ELLIS
Hays
RUSSELL
Russell
WILSON LAKE
LINCOLN
Lincoln
Minneapolis
Salina
Ellsworth
ELLSWORTH
Smoky Hill
NESS
Ness City
La Crosse
RUSH
BARTON
Great Bend
RICE
Lyons
McPHERSON
Hutchinson
Newton
ARKANSAS RIVER
100°
99°
98°
Dodge City

C

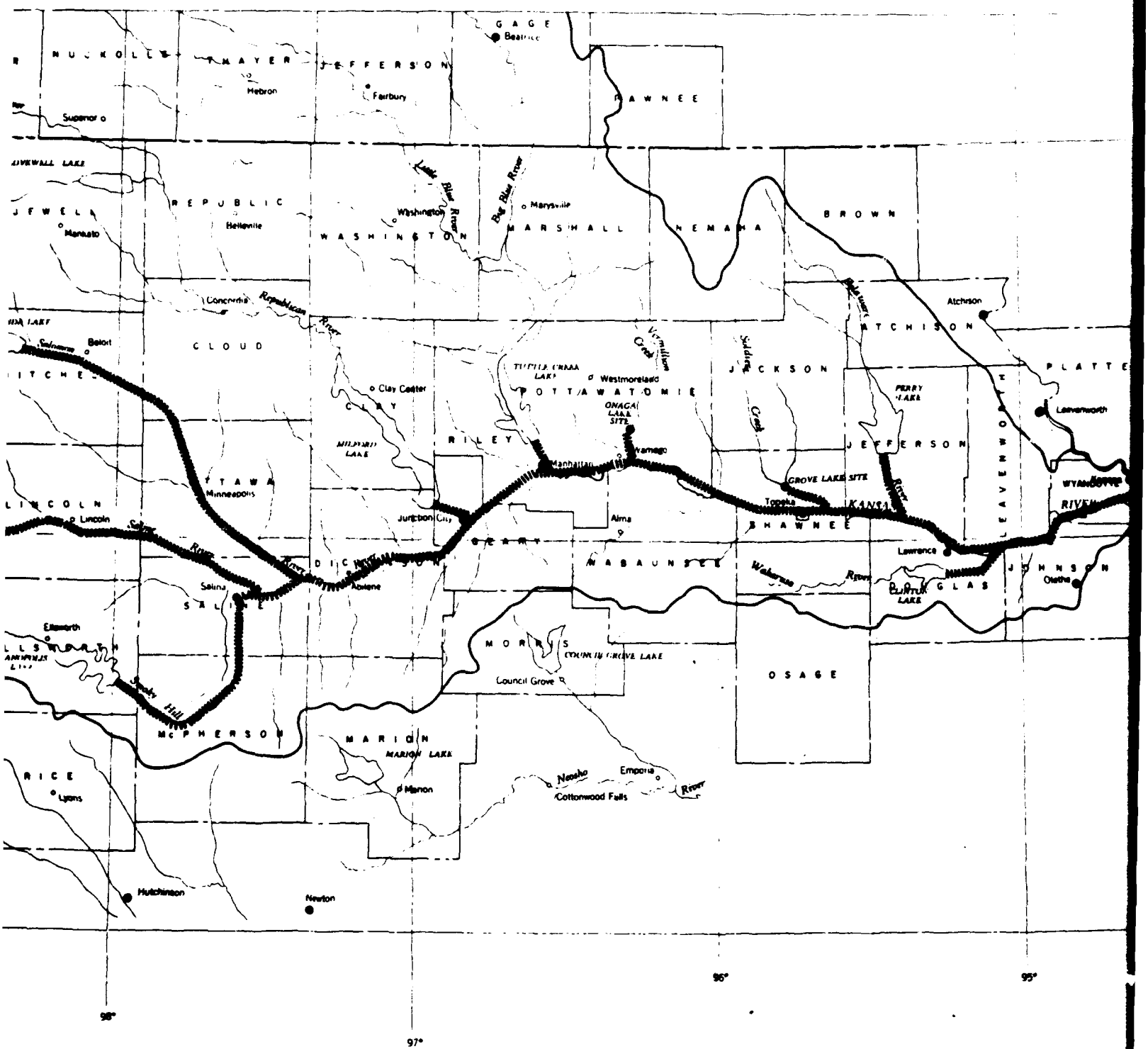
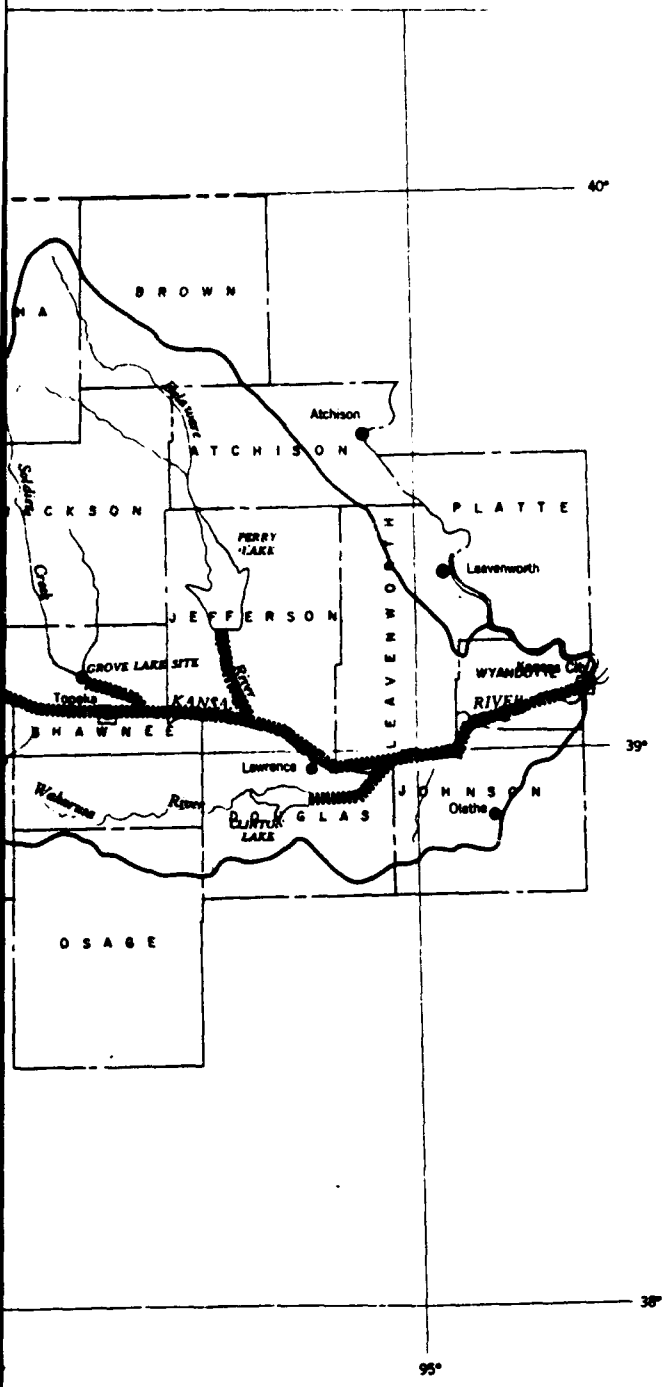


FIGURE 5.
Map of counties, East-Central Kansas, covered in this report with delineation of the Kansas River and tributaries under study.

BANK S



KANSAS RIVER AND TRIBUTARIES

BANK STABILIZATION STUDY

STUDY REACHES

CORPS OF ENGINEERS U. S. ARMY

KANSAS CITY DISTRICT

SEPTEMBER 1977

l Kansas, covered in this
he Kansas River and tribu-

Cultural Significance of Listed Localities

Localities listed as: 1, 3, 17, 26, 27, 30, 33, are certainly of middle Pleistocene age and cannot be expected to produce associations with human culture. However, they are important localities which contribute to our understanding of Pleistocene climate and fauna. Number 17 (the Kanopolis Local Fauna) may be the only known important assemblage of Yarmouthian age and demonstrates the existence of giant armadillo, Holmesina, in Kansas. Localities listed as 1, 2, 7, 8, 12, 13, 15, 21, 22, 24, 41, 42, 43, 45, 46, 50, and 51 have produced Late Pleistocene fauna and may produce human associations with Pleistocene fauna. Locality 51 has already produced some human bones which may be Pleistocene although further testing is required to support such an assignment. The remaining localities have produced material of either uncertain or Holocene age.

Localities of Paleozoic age have also been included (Appendix II) for the sake of completeness. They demonstrate an early interest in Paleozoic fossils in this region and include several unique and important sites.

Recommendations

The extensive fossil productivity of the sediments exposed in the banks of the Kansas River drainage system in the past and the significant recent discoveries by interested but non-professional parties demonstrates that an expanded search and recovery effort should be undertaken if sites are in danger of destruction and that such an effort would be highly rewarded.

It is suggested that localities of proven productivity be revisited and evaluated for possible excavation. This should be done by boat and by foot with emphasis placed on that part of the system in which recent discoveries have been made (particularly locality 51 and the surrounding area). It would be useful to elicit the cooperation of non-professionals whose interest in the vertebrate fauna of this area has sparked a number of significant discoveries. At this time the relative importance of the known localities could be assessed and localities in which a collecting effort would be worthwhile, determined.

This survey would provide the Kansas City District Corps of Engineers with a detailed report of the physical inspection of each known locality in the Bonner Springs area, and those that may be discovered, along this part of the river. It will include a statement of the abundance and importance of fossils at each locality with an assessment of immediate excavation, continued scrutiny, or salvage in the event of impending construction in the vicinity.

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APPENDIX I

GLOSSARY OF SCIENTIFIC NAMES

Acris crepitans - Northern Cricket Frog
Ambystoma tigrinum - Tiger Salamander
Anas carolinensis - Green Winged Teal
Antilocaprinae - Pronghorn Antelope
Bartramia longicauda - Upland Plover
Bison - American Buffalo
Bison antiquus - Extinct bison often found associated with Paleo-Indian sites
Bison crassicornis - Extinct bison
Blarina - Short-tailed Shrew
Blarina fossilis - Extinct Shrew
Bufo cognatus - Great Plains Toad
Bufo woodhousei - Woodhouse's Toad
Camelops - Extinct North American Camel
Campodus - Hybodont shark with crushing teeth
Campostoma - Stoneroller Minnow
Castor canadensis - Beaver
Castoroides - Giant Beaver
Cervalces - Extinct Stag-moose
Cervidae - Deer
Cervus - Elk
Chelydra serpentina - Snapping Turtle
Citellus richardsoni - Richardson Ground Squirrel
Citellus tridecemlineatus - Thirteen-lined Ground Squirrel
Cladodus occidentalis - Member of the oldest group of sharks. Known from its sharp piercing teeth.
Cnemidorphorus sexlineatus - Six-lined Race-runner lizard
Coelacanth - Lobe-finned fishes related to lungfish and amphibians. They survive today in the Indian Ocean.
Colubrinae - The most common North American snakes
Coluber - Racer Snake
Crotalus viridis - Western Rattlesnake
Cryptotis parva - Least Shrew
Cynomys gunnisoni - White-tailed Prairie Dog
Cynomys ludovicianus - Black-tailed Prairie Dog
Cyprinidae - Minnows
Dinobastis serus - Saber-toothed Cat
Equidae - Horses
Equus - Horse
Eumeces - Striped Skink
Eumeces fasciatus - Five-lined Skink
Euphagus cynocephalus - Brewer's Blackbird
Felis - Cat

Geomys - Eastern Pocket Gopher
Geomys bursarius - Prairie Pocket Gopher
Gigantocamelus - Giant camel
Graptemys geographica - Map Turtle
Hemiauchenia - Llama-like camel
Heterodon platyrhinos - Eastern Hognose Snake
Holmesina septentrionalis - Giant armadillo-like animal
Holostean - Primitive bony fish. Living forms are Gar and Bowfins
Homo sapiens - Man
Hyla versicolor - Gray Treefrog
Hybodont Sharks - A primitive group which gave rise to modern sharks
Ictaluridae - North American freshwater catfishes
Ictalurus melas - Black Bullhead
Ictalurus punctatus - Channel Catfish
Ictiobus niger - Black Buffalo Fish
Janassa - A shark with crushing teeth and a body shape like that of modern rays
Labyrinthodont - Extinct amphibians with complicated infolding of tooth enamel
Lepisosteus osseus - Longnose Gar
Lepomis cyanellus - Green Sunfish
Lepomis megalotis - Longear Sunfish
Lepospondyl - Extinct amphibians with spool-shaped vertebrate
Lepus - Hares and Jackrabbits
Lophodytes cucullatus - Hooded Merganser
Lungfish - Lobe-finned fishes which live today on the southern continents
Lutra canadensis - River Otter
Mammut americanus - American Mastodon, an extinct elephant
Mammuthus (Parelaphas) boreas - Boreal Mammoth, an extinct elephant
Mammuthus imperator - Imperial Mammoth
Mammuthus columbi - Columbian Mammoth
Masticophis - Coachwhip Snake
Megalonyx - Ground Sloth
Mephitis - Striped Skunk
Micropterus salmoides - Largemouth Bass
Microtus llanensis - Extinct Prairie Vole
Microtus ochrogaster - Prairie Vole
Microtus peroperarius - Extinct Meadow Vole
Microtus pennsylvanicus - Meadow Vole
Mylohyus nasutus - Woodland Peccary
Natricinae - Water Snakes
Natrix sipedon - Common Water Snake
Neofiber leonardi - Water Rat
Neotoma - Packrat
Nocomis - A Chub Minnow
Notropis - Shiner Minnow
Noturus - Madtom or Stonecat

Numenius borealis - Eskimo Curlew
Odocoileus virginianus - White-tailed Deer
Ondatra annectens - Extinct Muskrat
Ondatra nebracensis - Extinct Muskrat
Ondatra zibethicus - Muskrat
Onychomys - Grasshopper Mouse
Ophisaurus attenuatus - Slender Glass Lizard
Orodus- A hybodont shark with ridge-like teeth for shell crushing
Paleoniscid - Basal Groups of bony fishes. Distantly related to sturgeon
Paramylodon harlani - Ground Sloth
Pelycosaur - Primitive mammal-like reptile
Perca flavescens - Yellow Perch
Perognathus hispidus - Plains Pocket Mouse
Peromyscus progressus - Extinct White-footed Mouse
Petalodus - Shark-like fish with broad shell-crushing teeth
Pimephales promelas - Fathead Minnow
Pituophis melanoleucus - Pine (Bull) Snake
Pleuracanth Sharks - Freshwater sharks of the Paleozoic Era
Proboscidea - Elephants
Proncyon lotor - Raccoon
Pseudacris triseriata - Chorus Frog
Pseudemys - Sliders and Cooters (turtle)
Pseudemys scripta - Pond Slider
Rana catesbeiana - Bullfrog
Rana pipiens - Leopard Frog
Regina grahami - Graham's Water Snake
Reithrodontomys humulis - Eastern Harvest Mouse
Reithrodontomys montanus - Plains Harvest Mouse
Scalopus aquaticus - Eastern Mole
Scaphiopus bombifrons - Plains Spadefoot "Toad"
Sceloporinae - Spiny Lizards
Sigmodon hispidus - Common Cotton Rat
Sistrurus catenatus - Massasauga Rattlesnake
Smilodon fatalis - Saber-toothed Cat
Sorex cinereus - Masked Shrew
Sphenacodont - A generalized pelycosaur, lizard-like in form
Sternothaerus odoratus - Stinkpot Turtle
Stizostedion vitreum - Walleye "Pike"
Symbos cavifrons - Woodland Musk Ox
Sylvilagus floridanus - Eastern Cottontail
Synaptomys kansasensis - Extinct Bog Lemming
Tapirus veroensis - Extinct Tapir
Thamnophis - Garter Snake
Thomomys - Western Pocket Gopher
Trionyx - Softshell Turtle

Trionyx spiniferus - Spiny Softshell Turtle
Tropidoclonion lineatum - Lined Snake
Vulpes - Red Fox
Xystracanthus arcuatus - A shark-like form with a forwardly curved dorsal spine
Zapus hudsonius - Eastern Jumping Mouse
Zapus sandersi - Extinct Jumping Mouse

APPENDIX II

PENNSYLVANIAN AND PERMIAN VERTEBRATES FROM THE KANSAS RIVER FLOODPLAIN

GEARY COUNTY

1. "Near Ft. Riley"
   Material: Cladodus occidentalis tooth lit. cit. only
   Reference: Leidy, 1873

LEAVENWORTH COUNTY

2. "Near Leavenworth, Carboniferous" (Pennsylvanian)
   Material: Xystracanthus arcuatus dorsal spine lit. cit. only
   Reference: Leidy, 1873

RILEY COUNTY

3. KU-RIL-4
   Material: sphenacodont pelycosaur mandible KUVP 30611

4. "Near Manhattan, Upper Carboniferous" (Pennsylvanian)
   Material: Cladodus occidentalis teeth lit. cit. only
   Reference: Leidy, 1873

SHAWNEE COUNTY

5. KU-SHA-1, KU-SHA-2, collectively called the "Topeka Bone Beds", Pennsylvanian
   Material: numerous uncatalogued fragments in the KU collection of Cladodus, pleuracanth sharks, hybodont sharks, Campodus, Orodus, Janassa, Petalodus, paleoniscid fishes, holostean fishes, coelacanth fishes, lungfish, lepospondyl and labyrinthodont amphibians, and pelycosaurian reptiles.
   Reference: Rasmussen, Martin, Chorn, and Slimmer, 1971

APPENDIX III

CONTRACTOR'S VITAE

LARRY D. MARTIN

Position: Associate Professor of Systematics and Ecology and Geology and Curator of Vertebrate Paleontology, Museum of Natural History, University of Kansas.

Born: December 8, 1943

Education: B.S. in Zoology, University of Nebraska, 1966
M.S. in Geology, University of Nebraska, 1969
Ph.D. in Biology, (Systematics and Ecology). University of Kansas, 1973

Professional positions and awards:

a. Regents scholarships at the University of Nebraska 1962-1964 (Regent's All Scholastic Team, 1962), La Verne Noyles Scholarship, 1962, Green Memorial Scholarship (for field work in vertebrate paleontology) 1964.

b. Teaching assistantships Department of Geology, University of Nebraska Fall 1966-Spring 1969 and Department of Systematics and Ecology, University of Kansas Fall 1970-Spring 1971

c. Full-time research assistant, Department of Geology, University of Nebraska, and University of Nebraska State Museum (1969-1970).

d. Member of the University of Nebraska Vertebrate Paleontology field parties from 1964-1971. Field party leader, Division of Vertebrate Paleontology of the Museum (1965-1969); supervisor of field parties in Nebraska for the Division of Vertebrate Paleontology of the Museum during the summers of 1970 and 1971.

e. NDEA Fellowship at University of Kansas, September, 1971-August, 1972.

f. Research affiliate in Vertebrate Paleontology, University of Nebraska State Museum.

Society affiliations:

American Society of Mammalogists
Society of Vertebrate Paleontology
Sigma Xi (National Science honorary)
Sigma Gamma Epsilon (inactive-earth science honorary)
Nebraska Academy of Sciences
American Quaternary Association (AMQUA)
Kansas Academy of Sciences
Tertiary-Quaternary Association (TERQUA)
International Union for Quaternary Research (INQUA)

Current List of Publications:

1966. A Bird with Teeth. Museum Notes, Univ. Nebraska State Mus., vol. 29, pp. 1-2, 1 fig. (with J. Tate).

1966. (Abstract) Tooth Replacement in Hyracodon. Proc. Nebr. Acad. Sci., 76th Meeting, p. 15.

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1969. (Abstract) Evolutionary Trends in Certain Phylogenetic Lines of Quaternary Mammals. Proc. Nebr. Acad. Sci. 79th Ann. Meeting, North-Central Section, p. 7. (with C. B. Schultz and L. G. Tanner).

1969. (Abstract) New Information on Baptornis advenus. Proc. Nebr. Acad. Sci. 79th Ann. Meeting, pp. 49-50 (with J. Tate).

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1971. (Abstract) The Stratigraphic Position and Paleoecology of the Angus Local Fauna. G. S. A. 5th Ann. Meeting, North-Central Section, p. 271. (with C. B. Schultz).

1971. An Early Pleistocene Eagle from Nebraska. Condor, vol. 73(2), pp. 248-250, 1 fig.

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1972. Notes on the Deciduous and Permanent Dentition of the Hyracodonts. Trans. Nebraska Acad. Sci., vol. 1, pp. 1-12, pls. 1-6. (with L. G. Tanner).

1972. Two Lynx-like Cats from the Pliocene and Pleistocene. Bull. Univ. Nebraska State Mus., vol. 9, no. 7, pp. 197-203, figs. 1-3. (with C. B. Schultz).

1972. A New Owl from the Eocene of Wyoming. Auk, vol. 89(4), pp. 887-888, 1 fig. (with C. C. Black).

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1977. Teeth in Ichthyornis (Class: Aves). Science, vol. 195:1331-1332 (with J. D. Stewart).

1977. Biostratigraphy of the Neogene-Quaternary Boundary in North America. Report, IGCP Second Symposium on the Neogene/Quaternary Boundary, Inst. Geol. Bologna, Italy, pp. 251-272 (with C. B. Schultz).

1977. An Immature Baptornis advenus from the Cretaceous of Kansas. Auk, vol. 94, no. 4, pp. 787-789, 1 fig. (with O. Bonner).

1977. The Burrows of the Miocene Beaver Palaeocastor, Western Nebraska, N.S.A. Palaeogeography, Palaeoclimatology, Palaeoecology vol. 22, pp. 173-193, figs. 1-11. (with D. K. Bennett).

1978. The End of the Pleistocene in North America. TER-QUA Symposium, THE ICE AGE -- WHEN DID IT BEGIN AND HAS IT ENDED, Trans. Nebraska Acad. Sciences, Vol. 6:117-126. (with A. M. Neuner).

1978. Excavations at Natural Trap Cave, TER-QUA Symposium, THE ICE AGE -- WHEN DID IT BEGIN AND HAS IT ENDED, Trans. Nebraska Acad. Sciences, Vol. 6:107-116. (with B. M. Gilbert).

1978. Provincial Land Mammal Ages for the North American Quaternary. Trans. Nebraska Acad. Sciences, Vol. 5:59-64. (with C. B. Schultz, L. G. Tanner and G. R. Corner).

1978. A multivariate Comparison of Some Extant and Fossil Felidae, Carnivora. Carnivore, Vol. 1(1):80-88. (with G. Glass).

1978. An American Lion, Panthera atrox, from Natural Trap Cave, North-Central Wyoming. Contrib. to Geology, Univ. Wyoming, Vol. 16(2):95-101 (cover). (with B. M. Gilbert).

1978. Foot-Propelled Diving Birds of the Mesozoic. Abstracts, XVII International Ornithological Congress, p. 3.

1978. Paleontology and Paleoecology of Natural Cave. Abstracts, Fifth AMQUA Meetings, p. 203. (with B. M. Gilbert and S. A. Chomko).

1978. Martin, L. D. and K. Whetstone. An Oligocene Sirenian from The Bucatunna Formation of Alabama. Tulane Studies in Geology and Paleontology, 14:161-163.

1979. Martin, L. D. and B. M. Gilbert. Dicrostonyx (Rodentia) from the Late Pleistocene of Northern Wyoming. Jour. Mammalogy, 60:193-195.

CURRICULUM VITAE

Name: Kenneth N. Whetstone

Office: Museum of Natural History
University of Kansas
Lawrence, Kansas 66045
Phone: 913-864-3216

Present Position: Graduate Student (Ph.D) in Systematics and Ecology
Research assistant to L. D. Martin

Field of Study: Fossil vertebrates

Biography: Born - March 1, 1953; Montgomery, Alabama

Marital status - Married

Education: B.S. (Honors) University of Alabama - Geology, 1975
M.A. (Honors) University of Kansas - Systematics and Ecology, 1977.

Awards and Honors:

Birmingham Southern College Summer Scholarship - 1970
University of Alabama Alumni Honors Scholar - 1971-75
W. B. Saffold Prize in Classical Languages - 1971-72
Phi Beta Kappa (elected 1974)
Sigma Gamma Epsilon (Geology Honorary, elected 1975)
Summer Honors Fellowship, University of Kansas - 1977
Fulbright Graduate Fellow (United Kingdom) - 1978-79

Research Grants:

University of Alabama Undergraduate Research Grants: 1975
Chapman Fund - 1979
Sigma Xi - 1979

Professional positions:

Academic year 1979-80: Research assistant, Museum of Natural History, University of Kansas
Academic years 1975-76, 1976-77, 1977-78: Graduate Teaching assistant in Human Anatomy, General Biology
Summer 1976 - Curatorial assistant to KU Vertebrate Paleontology field party
Summer 1975 - Assistant archaeologist, Ft. Toulouse Historical Site (State of Alabama, Historical Commission)

Society affiliations:

Society of Vertebrate Paleontology
Geological Society of America
Alabama Geological Society
Kansas Academy of Sciences
Sigma Xi

Publications:

Numerous publications in regional geology, vertebrate paleontology, and invertebrate paleontology. A list is available upon request.

CURRICULUM VITAE

Name: John D. Chorn

Office: Museum of Natural History
University of Kansas
Lawrence, Kansas 66045
Phone: 913-864-3216

Present Position: Graduate Student (Ph.D) Systematics and Ecology and Curatorial Assistant, Division of Vertebrate Paleontology

Field of Study: Systematics of fossil fish, amphibians, and reptiles, and paleoecology of palezoic vertebrate communities, osteology of Pleistocene vertebrates.

Biography: Born - September 20, 1948, Evanston, Illinois

Marital status - Single

Education: B.A. in Geology, Drury College, Springfield, MO., 1970, M.A. Systematics and Ecology, Univ. Kans., Lawrence, KS, 1978. Three years graduate work in Geology at the University of Kansas; four years graduate work in Systematics and Ecology at the University of Kansas.

Military Service: 63rd Engineer Topographic Corp - two years (U.S. Army)

Professional positions:

a. Directed field preparation lab at Natural Trap Cave - 1976-1979.

b. Research assistant to Dr. Larry D. Martin for Fall, 1977
Teaching assistant, Comparative Anatomy, Spring, 1979

Society affiliations:

Society of Vertebrate Paleontology
Kansas Academy of Sciences
Nebraska Academy of Sciences
Sigma Xi (Associate member)

Committees: Search Committee (Lower Vertebrate Paleontologist)
Budget Committee (Graduate Student Council)

Current List of Publications

John D. Chorn

1971. (Abstract) Vertebrate Assemblages from Channel Sandstones in the Pennsylvanian-Permian Megacyclothems of Kansas and Nebraska. G.S.A. 5th Ann. Meeting North-Central Section, p. 271. (with D. L. Rasmussen, L. D. Martin, and D. F. Slimmer).

1976. (Abstract) Fossil Lungfishes in Kansas. Trans. Kan. Acad. Sci. (Presented before Annual Meeting of the Kansas Academy of Sciences).

1977. (Abstract) A Late Pennsylvanian Vertebrate Assemblage from Stromatolites in the Bern Limestone, Northeastern Kansas. Trans. Kan. Acad. Sci. (with C. D. Conley) Presented before Annual Meeting of the Kansas Academy of Sciences).

1978. On the Use of the Term Nomen Vanum in Taxonomy. Jour. Paleo. (with Kenneth Whetstone).

1978. Helicoprion (Elasmobranchii, Edestidae) from the Bone Spring Formation (Lower Permian) of West Texas. Univ. Kan. Paleontological Contrib.

1978. Affinities of the Chondrichthyan Organ-Genera Listracanthus and Petrodus. Univ. Kan. Paleontological Contrib. (with E. A. Reavis)

1978. A Large Chondrichthyan Spine, Physonemus mirabilis, from the Upper Pennsylvanian of Kansas, U.S.A. Neues Jahrbuch fur Geol. und Palaeont. Monatshefte. (with David Frailey)

1978. Mammalian Species. Ailuropoda melanoleuca (Giant Panda). (with R. S. Hoffmann)

In Press (Abstract) Stromatolites in a Schizohaline Environment--A Vertebrate Death-Trap from the Pennsylvanian of Northeast Kansas. Geol. Soc. Amer. (with C. D. Conley)

CURRICULUM VITAE

Name: Carl David Frailey DOB: 16 March 1947

SSN: 334-42-2507 MS: Single

Address: Division of Vertebrate Paleontology, Museum of Natural History, University of Kansas, Lawrence, KS 66045

I. Education

A. Southern Illinois University, Carbondale, IL 62901; attended from June, 1965, to June, 1969; B.A. in Zoology with Geology minor.

B. University of Florida, Gainesville, FL 32601; attended from September, 1969, to June 1971, and from March to June, 1974; M.S. in Zoology with a Geology minor, 1974.

C. University of Kansas, Lawrence, KS 66045; Ph.D. program in Systematics and Ecology initiated in August, 1976.

II. Work Experience

A. January, 1979 to present. Teaching Asst., Dept. of Systematics and Ecology, University of Kansas. Supv: Dr. Ken Armitage.

B. August, 1976 to December, 1978. Research Asst., Museum of Natural History, University of Kansas. Supv: Dr. Larry Martin.

C. November, 1974 to July, 1976. Curatorial Asst., American Museum of Natural History, New York, NY 10024. Supv: Dr. Richard H. Tedford, Department of Vertebrate Paleontology.

D. June, 1974 to August, 1974. Research Asst., Florida State Museum. Supv: Dr. Greg Shaak.

E. September, 1971 to September, 1973. U.S. Army, Veterinary Technician.

F. June, 1970 to July 1970. Research Asst., NIH-UF Cooperative Biological Investigations in Jamaica. Supv: Dr. T. H. Patton.

G. September, 1969 to June, 1970. Teaching Asst., UF Dept. Zoology. Supv: Dr. Clifford Johnson.

H. March, 1969 to June 1969. Teaching Asst., SIU Dept. Geology. Supv. Dr. John Utgaard.

I. January, 1968 to March, 1969. Illustrator, SIU Dept. Zoology. Supv: Dr. William George.

J. June, 1965 to January 1968. Exhibits Technician, SIU Museum. Supv: Mr. Darrell Harrison.

III. Field Experience

1979, June-August. National Geographic Society - George C. Page Museum (Natural History Museums of L.A. County) Paleontological Expedition to Peru.

1978, June-September. University of Florida/L.A. County Museum Paleontological Expedition to Bolivia. Collected Cenozoic vertebrate fossils in cooperation with Servicio Geologico de Bolivia.

1977, August-September. National Geographic Society - George C. Page Museum (Natural History Museums of L.A. County) Paleontological Expedition to Southeastern Peru.

1977, July. Collected Oligocene and Miocene fossils in Wyoming and South Dakota with University of Kansas Museum of Natural History field party.

1976-1977, December-January. Surveyed Bolivia and Peru for research possibilities in vertebrate paleontology; collected fossils for the University of Kansas Museum of Natural History.

1976, August. Collected fossils in Florida for the University of Kansas Museum of Natural History.

1974, June. Surveyed Tertiary localities in Nebraska, Wyoming, and Colorado and collected fossils for the Florida State Museum.

1970, June-July. Located and collected small vertebrate fossils in cave deposits in Jamaica for zoogeographic studies of Dr. T. H. Patton of the Florida State Museum.

1969-1971. Various short collecting trips in Florida associted with graduate work at the University of Florida.

IV. Special Interests and Current Research

Systematics of Cenozoic mammals of North and South America and evolution as it pertains to the fossil record. Currently engaged in descriptions of Tertiary faunas from Florida and Nebraska and bibliographic preparation for study in Peru and Bolivia.

V. Professional and Honor Society Memberships

A. The Society of Vertebrate Paleontology
B. The Paleontological Society
C. Society of Systematic Zoology
D. Timberlane Research Organization
E. Kansas Academy of Science
F. The Nebraska Academy of Sciences
G. Sigma Xi, Associate Member
H. Phi Sigma Biological Honor Society
I. Phi Kappa Phi Honor Society

VI. Grants and Awards Received

Co-recipient of National Science Foundation Grants for work in Bolivia. 1978, DEB-7803122; 1979, DEB-7905861 (with K. Campbell, R. Wolff and B. MacFadden).

Co-recipient of National Geographic grants for field work in Peru (with Dr. Kenneth Campbell of the George C. Page Museum). 1977, 1979.

Saul Fund grant for work in South America, KU, 1976.

Claude Hibbard Memorial Fund grant for research in vertebrate paleontology, KU, 1976.

Graduate Fellowship, UF, 1970-71.

VII. Publications

1972. Additions to the Pleistocene avifauna of Arredondo, Florida. Quart. Jour. Florida Acad. Sci., 35(1):53-54.

1976. Review of some carnivora (Mammalia) from the Thomas Farm Local Fauna (Hemingfordian; Gilchirst County, Florida). Amer. Mus. Nat. Hist., Novit. no. 2610: 1-9 pp. (with Richard H. Tedford).

1977. Chasmaporthetes kani n. sp. from China with remarks on generic affinities within the Hyaenidae (Mammalia, Carnivora). Amer. Mus. Nat. Hist., Novit. no. 2632: 1-16 pp. (with H. Galiano).

1978. Vertebrate paleontology in Bolivia and Peru: A prospectus for research. Jour. Kansas Acad. Sci. [Abs.]. (with Kenneth Campbell and Ronald Wolff).

1978. The SB-1A Local Fauna (Arikareean; Suwanee County, Florida). Occas. Papers Univ. Kansas Mus. Nat. Hist.

1978. A large chondrichthyan spine, Physonemus mirabilis, from the Upper Pennsylvanian of Kansas, U.S.A. Neues Jahrbuch fur Geologie und Palaontologie. (with John Chorn).

In Press. The large mammals of the Buda Local Fauna (Alachua County, Florida). Bull. Florida St. Mus.

In ms. Peromyscus (Podomys) floridanus. for Mammalian Species, American Society of Mammalogists. (with James Layne).

In ms. A middle Oligocene fauna from Florida and its stratigraphic implications. (with John Waldrop).

In ms. A Pleistocene Bufo from Peru. (with Kenneth Campbell).

In ms. Hippocamelus, Myocastor, and Ctenomys from the Tarija Basin of Bolivia (Pleistocene). (with Kenneth Campbell and Ronald Wolff). (submitted to Occ. Papers, Mus. Nat. Hist., KU).

APPENDIX IV

REVIEWER'S COMMENTS

Regarding the comments made by Joseph W. Snell, Executive Director and Kansas State Historic Preservation Officer: Pagination has been supplied, spelling errors corrected and the term "Carboniferous" has been replaced with the more specific term "Pennsylvanian". The citation requested for the quoted newspaper article is unknown. This reference is probably slightly less than 100 years old and could only be found by a search through each issue of the Lawrence, Kansas newspapers of that period. Although this quotation could be omitted or paraphrased I prefer to leave it as it is - unreferenced. I can only hope that this is satisfactory.

Kansas State Historical Society

120 West Tenth • Topeka, Kansas 66612 • 913/296-3251

March 30, 1979

Donald L. Fritts
Assistant Chief, Engineering Division
Attn: MRKED-BR
Kansas City District, Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

Dear Mr. Fritts:

Staff review of two reports pertaining to the Kansas river bank stabilization study has been completed. Comments on each of these reports is given below:

Although there is no one on the State Historic Preservation Officer's staff with the training to evaluate properly the "Survey of Fossil Vertebrates from East-Central Kansas" by Larry D. Martin, we offer several editorial comments: The term "Carboniferous" is no longer used to describe the geologic rock column in Kansas. (See "The Stratigraphic Succession in Kansas," Kansas Geological Survey Bulletin 189, Lawrence, 1968.) A citation should be supplied for the newspaper account on page 3. The Kansas county, "Geary," is misspelled on page 8. Pagination should be supplied.

Our comments on the "Preliminary Archeological Literature Search, Western Portion, Kansas River and Tributaries Bank Stabilization Study, Kansas," by Patricia O'Brien include both editorial remarks and criticism directed at the substance of the report:

Some pages of the report are not numbered and the tables are not indexed for reference. Several misspelled words are present, for instance the word "Saline" on page 35, when apparently Salina is meant. Neither of the maps, Figures 1 and 2, has a legend for use in its interpretation.

The bibliography compiled for use as source material is very good and the search through archeological site files has apparently been thorough.

One apparent deviation of the report from the scope of work outlined in section 2.a. is the identification of a considerable number of sites located out of the floodplain of the study area. Knowledge of these sites is necessary for understanding the prehistory of the study area, but the scope of work was restricted to locating known sites in the floodplains of the rivers under study.

A major weakness of the report is the omission of any descriptive information about the geology, topography or environment of the river valleys under study.

The scope of work identifies channel migration and bank erosion as topics to be addressed by the study; however, this report does not describe these processes or relate these two phenomena to either the location or conservation of archeological resources in the study area.

Reference is made on page 33 to habitats used by prehistoric people, but the reader is given no information describing their nature. In a similar vein a scheme is used to order site locations according to topography. These are variously called "generalized zones" or "situational locales" and recommended survey areas are described in terms of "geomorphic settings," but no specific descriptions of these entities in terms of the Kansas river or its western tributaries is offered.

The comments below follow the outline of the report:

Section III Introduction

The Kansas Anthropological Association does not maintain archeological site survey files. Members involved in the archeological certification program report site locations to the Kansas State Historical Society where they are incorporated into state survey files.

Section IV Cultural Chronology

This section describes some of the artifacts associated with the prehistoric cultures identified in the survey area. Since the scope of work calls for information concerning archeological sites it would seem more appropriate to discuss the settlement pattern associated with each of these. Information about the location, size and variety of sites identified thus far would be more pertinent here than a description of pottery types or projectile point styles.

Section VI Sites Identified

The "generalized zones" used to characterize archeological site locations have not been adequately described either in terms of the geology, topography and ecology of the four river valleys under study or in terms of the relationship of these "zones" to the archeological sites.

United States Department of the Interior
HERITAGE CONSERVATION AND RECREATION SERVICE
INTERAGENCY ARCHEOLOGICAL SERVICES - DENVER
OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
1978 SOUTH GARRISON -- ROOM 107
DENVER, COLORADO 80227

IN REPLY REFER TO:

APR 1 4 1979

Mr. Donald L. Fritts
Assistant Chief, Engineering Division
Kansas City District, Corps of Engineers
700 Federal Building
Kansas City, Missouri 64106

Dear Mr. Fritts:

Our Washington office forwarded copies of the following reports which were sent to them for review and comment:

"Preliminary Archeological Literature Search, Western Portion, Kansas River and Tributaries Bank Stabilization Study, Kansas" by Patricia O. Brien,

"Survey of Fossil Vertebrates from East-Central Kansas" by Larry D. Martin, and

"A Proton Magnetometer Survey of Borrow Areas Along Cut-Off Lake: L-246" by Larry Grantham and Earl W. McMurry.

Our current workload does not allow us time for review of these documents; however, lack of this action does not imply our endorsement of the reports.

Thank you for the opportunity to review these reports. We hope to provide this service in the near future.

Sincerely yours,

J. S. Hoffman
Acting Chief, Interagency
Archeological Services - Denver

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Section VII Assessment

The discussion under the heading "Cultural Affiliation" disagrees with the accompanying table entitled "Identifiable Components on the Drainages of the Western Kansas River Basin" concerning the numbers of sites that can be assigned to a cultural/historical time period. The discussion states the cultural affiliation of 33 of 113 sites in the western Kansas river basin is unknown, leaving a total of 80 sites culturally identified, while the table lists 88 sites identified with a cultural/historical time period.

The table entitled "Location of Sites Within the Western Kansas River Basin by Identified Components" is confusing. Apparently some numbers represent percentages and some represent total numbers of sites in different "situational locales."

The statement following the table that the locations of the sites indicate a diversity of habitats used by prehistoric people is not supported by any evidence for this diversity.

The statement that 48 sites in the study area are listed on the National Register of Historic Places is incorrect. Only four of the sites identified in this section have National Register status: the Paint creek (14MP1) and Swenson (14MP301) sites in McPherson county, the Minneapolis site (140T5) in Ottawa county, and the Whiteford site (14SA1) in Saline county.

This section lacks a preliminary statement evaluating the eligibility of any of the sites for National Register listing such as is called for in Section 4.d. of the scope of work.

The proposed survey of "geomorphic settings" is not very well explained. It is not clear how these survey areas relate to the "generalized zones" or "situational locales" referenced earlier in the report, or how these geomorphic settings relate to the problems of channel migration or bank erosion that will be the ultimate concern of the study.

In summary, it appears that while sufficient research has been done to locate known archeological resources in the study area, this information is not considered in terms of the scope of work provided to assist in the study of the specific problems of channel migration or bank erosion.

Very truly yours,

Joseph W. Snell
Executive Director and State
Historic Preservation Officer

cc: Tom Witty
State Archeologist